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ABSTRACT

A study examined differences in cardiovascular (CV) reactions and hostility following non-violent play and violent video game play. Subjects were 30 male college undergraduate students. Only male subjects were used because most video games are male oriented, males frequent videogame arcades more often than females, and the gender gap in video game play widens with age until the undergraduate years. Hostility and CV reactivity were examined after subjects' played either a nonviolent game of billiards or a violent video game. The video game, "Mortal Kombat," was presented in either a less violent (MK1) or a more violent (MK2) version. Results indicated that subjects who played the video game had higher heart rate reactivity than those who played billiards. Subjects who played the MK2 version showed greater systolic blood pressure reactivity than those who played the MK1 version or billiards. Subjects who played MK2 scored higher on the hostility measures than those who played MK1, who in turn scored higher than those who played billiards. The results suggest that the level of video game violence, not just the violence per se, should be of concern to consumers. (HTH)

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Mortal Kombat: The Effects of Violent Video Technology on Males' Hostility and Cardiovascular Responding

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Abstract

Cardiovascular (CV) reactivity and hostility were examined in 30 male undergraduates after either non-violent (billiards) or violent videogame play. Violence varied between 2 versions of Mortal Kombat (MK1 = less violent, MK2 = more violent). Increased game violence elicited greater CV reactivity and higher scores on hostility measures. Ss who played MK had higher heart rate reactivity than those who played billiards. Subjects who played MK2 showed greater systolic blood pressure reactivity than those who played MK1 or billiards. Subjects who played MK2 scored higher on the hostility measures than those who played MK1, who in turn scored higher than those who played billiards. These results indicate that the level of video game violence, not just violence per se, should be of concern to consumers.

Mortal Kombat: The Effects of Violent Video Technology on Males' Hostility and Cardiovascular Responding

The success of the game Mortal Kombat fueled the controversy over video game violence (Elmer-Dewitt, 1993). Subsequently, game ratings were developed. The violence warning placed on Mortal Kombat was related to a coetaneous increase in sales (Goldstein, 1994).

Most video games contain some violent activity (Braun & Giroux, 1989). Following violent video game play children display increased arousal (Silvern & Williamson, 1987), aggression (Schutte, Malouff, Post-Gorden, & Rodasta, 1988), hostility (Anderson & Ford, 1986), and activity levels (Cooper & Mackie, 1987) and decreased prosocial behavior (Chambers & Ascione, 1987; Silvern & Williamson, 1987).

Statement of Problem

This study examines differences in cardiovascular (CV) reactions and hostility of undergraduate males following non-violent and two levels of violent video game play. Males were used as subjects since (a) most video games are male oriented, (b) males frequent arcades significantly more often than females (Braun, Goupil, Giroux, & Chagnon, 1986), and (c) the gender gap in video game play widens with age until the undergraduate years (Kubey & Larson, 1990).

Hypotheses

We expected to find greater physiological arousal [increases in heart rate (HR), systolic blood pressure (SBP), and diastolic blood pressure (DBP)] and higher levels of hostility with increasing game violence.

Methods

Participants included 30 male college students. They ranged in age from 18-23 (M = 19.53) and were primarily European-American.

Research assistants blind to the hypotheses of the study ran subjects individually. Baseline cardiovascular measures were gathered and the randomly assigned game was demonstrated to the subject. Subjects played one of the following games for 10 minutes: (a) non-violent video game - billiards, a game of skill; (b) level 1 violent video game - Mortal Kombat (MK-1), a game of skill and action that includes fighting (e.g., punching, kicking) to the death, but no blood, and (c) level 2 violent video game - Mortal Kombat (MK-2) - the fighting moves are accompanied by spurting blood. Only the level of violence varied between the two versions of Mortal Kombat; there were built-in controls for characters, graphics, and sound.

Subjects' BP and HR were monitored immediately after cessation of play. To decrease demand characteristics subjects were told that they had completed the video game study. Each subject agreed to participate in a "second" study, signed

another consent form, and completed three hostility measures (Adjective Checklist, Buss-Durkee Hostility Inventory, and Bell Adjustment Inventory). Finally, the subjects were fully debriefed.

Results and Discussion

As expected, higher levels of video game violence elicited greater CV reactivity and higher scores on hostility measures. Subjects who played either level of Mortal Kombat displayed significantly higher HR reactivity than those who played billiards (See Table 1 for means and SDs. All ps < .05). Subjects who played MK-2 showed greater SBP reactivity than those who played either MK-1 or billiards. Finally, on each of the hostility measures, subjects who played MK-2 scored higher than those who played MK-1 who in turn scored higher than those who played billiards (see Table 1 for means and SDs. All ps < .001). Additionally, HR and SBP were significantly correlated with the hostility measures (see Table 2).

These results indicate that concern about video game play should not be limited to simply whether or not the games contain violence. Rather, the level of violence within a game has a significant impact on behavior and must be considered.

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